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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/526,348	03/16/2000	Dr. Guido Bojack	514413-3817	2532

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EXAMINER
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ART UNIT	PAPER NUMBER
1623	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/526,348	Applicant(s) Bojack et al.	
	Examiner L. E. Crane	Group Art Unit 1623	

- THE MAILING DATE of this communication appears on the cover sheet beneath the correspondence address -

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE --3-- MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be filed after six months from the date of this communication.
- If the prior for reply specified above is less that thirty (30) days, a reply within the statutory minimum of thirty days will be considered timely.
- If NO period for reply is specified above, such period shall ,by default, expire SIX (6) MONTHS from the date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 USC §133).

Status

[X] Responsive to communication(s) filed on -04/02/03 (CPA Request)-.

[] This action is **FINAL.**

[] Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

[X] Claims --1-21-- are pending in the application. Claims -[]- have been cancelled.
Of the above claim(s) ---[]-- is/are withdrawn from consideration.

[] Claim(s) ---[]-- is/are allowed.

[X] Claims ---1-21--- are rejected.

[] Claim(s) ---[]--- is/are objected to.

[] Claim(s) ---[]-- are subject to restriction or election requirement.

Application Papers

[] See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

[] The proposed drawing correction, filed on -[]- are [] approved [] disapproved.

[] The drawing(s) filed on -[]- is/are objected to by the Examiner.

[] The specification is objected to by the Examiner.

[] The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119(a)-(d)

[X] Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

[X] All [] Some* [] None of the CERTIFIED copies of the priority documents have been

[X] received.

[] received in Application No. (Series Code/Serial Number) -[]-.

[] received in the national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: -[]-.

Attachment(s)

[] Information Disclosure Statement(s), PTO-1449, Paper No(s). --[]--

[] Notice of Reference(s) Cited, PTO-892

[] Notice of Draftsperson's Patent Drawing Review, PTO-948

[] Interview Summary, PTO-413

[] Notice of Informal Patent Application, PTO-152

[] Other: -[]-.

The instant Office action has been prepared in response to a Continued Prosecution Application request (CPA) filed by applicant on April 2, 2003. The remainder of this Office action is, except for the date of preparation, a duplicate of the previous Office action.

The disclosure is objected to because of the following informalities:

The abstract is grammatically incomplete because it is drafted as sentence fragments. In addition, reference is made in the abstract to subject matter in the claims as submitted, which claims subject to amendment and/or cancellation.

Appropriate correction is required.

Applicant is reminded of the proper content of an abstract of the disclosure.

In chemical patent abstracts for compounds or compositions, the general nature of the compound or composition should be given as well as its use, *e.g.*, "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplifications of a species could be illustrative of members of the class. For processes, the type of reaction, reagents and process conditions should be stated, and generally illustrated by a single example unless variations are necessary.

Complete revisions of the content of the abstract is required on a separate sheet.

No claims have been cancelled and no preliminary amendments filed as of the date of the instant Office action. Two (2) Information Disclosure Statements (IDSs) have been received with all cited references and made of record. See individual IDS's for references not

made of record for lack of complete bibliographic information. See in particular PTO-892 ref. "**S**" which is the equivalent of the incomplete, lined-through reference on the second submitted PTO-1449, so no further action is required by applicant to update the incomplete submission.

Claims **1-21** remain in the case.

Note to applicant: A complete second copy of the disclosure including claims has been received in the instant file wrapper, but there are no instructions concerning what applicant wishes the PTO to do with this submission. Appropriate written instructions are respectfully requested.

35 U.S.C. §101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title."

Claim **1** is rejected under 35 U.S.C. §101 because the claimed recitation of a use (last line, the term "used"), without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. §101. See for example *Ex parte Dunki,* 153 USPQ 678 (Bd. App. ,1967) and *Clinical Products, Ltd. v. Brenner,* 255 F. Supp. 131, 149, 149 USPQ 475 (D.D.C. 1966).

Claims **1-21** are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one of ordinary skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The fundamental issue here is whether practicing the full scope of the instant invention is possible without undue experimentation. As provided for in In re Wands (858 F.2d 731, 737; 8 USPQ 2d 1400, 1404 (Fed Cir. 1988) the minimum factors to be considered in determination of whether a conclusion of "undue experimentation" is appropriate are as follows:

A. The breadth of the claims is excessive in view of the number of specific embodiments listed in the Tables at pages 63-123 (11 examples) when compared with the total number of examples (a total of 698 separate examples are listed at pages 63-123),

B. The nature of the invention is compounds which are adenosine deaminase (ADA) inhibitors and their administration to mammalian hosts in need of treatment wherein ADA inhibition is necessary, or administration to plants as a herbicide, but without much guidance concerning which mammalian disease conditions are to be treated and how such treatment should proceed;

C. The state of the prior art varies widely, but in some cases is very limited because the synthesis of several of the bicyclic heterocycles is presently unknown in the prior art;

D. The level of one of ordinary skill also varies widely because of the wide variation in the amount of prior art available in either the synthetic or medicinal areas depending on the ring system selected;

E. The level of predictability in the art also varies widely because of the lack of information concerning how to make or use several of the heterocyclic systems included within the scope of the claims;

F. The amount of direction provided by the inventor is quite limited because the number of examples provided (only 11 compounds characterized), wherein only a subset were tested for biological activity, and none of these tests for biological activity were conducted on whole mammalian hosts (all *in vitro* tests);

G. The existence of working examples is very limited with only 11 compounds prepared and characterized and only 5 tested for ADA activity using rabbit ADA; and

H. The quantity of experimentation needed to make or use the invention based on the content of the disclosure would be very substantial because of the lack of prior art teachings to guide the synthetic efforts where the bicyclic heterocycles are previously unknown and the almost complete absence of medicinal test data to guide experimentation concerning how best to effect ADA inhibition in a complete mammalian hosts. Examiner therefore concludes that, in the absence of considerably larger quantities of both synthetic and medicinal testing data, the instant claimed subject matter could only be practiced following expenditure of an undue amount of experimentation in both the synthetic and medicinal testing areas. In addition, the vast array of substituents, nested substituents, and inoperative embodiments like SF_5 (claim **1** at line 19, claim **2** at line 5, claim **4** at line 23, etc.; a very hydrolytically unstable substituent at best) make the task of the ordinary practitioner attempting to practice the instant invention even more difficult.

Claims **1-9, 11, 14 and 18-21** are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out

and distinctly claim the subject matter which applicant regards as the invention.

Claim **1** is apparently directed to a method of treating and therefore is incomplete for failure to specify either a specific disease condition being treated by said administration or -- a host in need thereof --.

In claim **1** at line 27, the term "each of the 23 last mentioned radicals" renders the instant claim both unclear and incomplete because the term "unsubstituted or substituted" occurs prior to this group (at line 19) said earlier occurring functional group is apparently therefore incompletely defined (identity of substituents not specified). See also claim **4** at line 21.

In claim **1** at line 59, the term "two or more substituents from the above groups (a) to (c) together" is unclear, because the ordinary practitioner would not know if the noted term implies a chemical bond between substituents and/or that "two or more substituents" are selected from all of the alternative provided in (a), (b) and (c). See also claim **3.** Clarification of the intended meaning is respectfully requested.

In claim **1** at lines 62-64, the variable "L" is defined as "attached cyclically to the bridge G ... via a hetero atom selected from the group consisting of N, O and S," a term which incompletely describes what is being claimed because the particular structures being referred to are not provided, and because the heteroatom "N" has three valences, only two of which are provided with substituents.

In claim **1** at lines 65-66, the definition of Z^1 and Z^2 is incomplete because said definition has not specified which particular acids are the source of radical substituents.

In claim **1** at lines 69-70 the terms "aryl" and "heterocyclyl" are incompletely defined for lack of an upper size limit or a specification of the nature and location of hetero atoms. See also the terms "substituted aryl,", "heteroaryl," and "substituted heteroaryl" at lines 78-79 and see also dependent claims.

In claim **1** at lines 83-84 and 85, the terms "heterocyclyl" and "heteroaryl" which are generic to two classes of substituents appear to be incorrectly defined as compounds.

In claim **8** at line 8 the term "Z is a precursor of the radical G-L" is incomplete because this functional description fails to describe what the structure of "Z" is. See also claims **9 and 11**.

Claim **8** is rendered incomplete at its last line by the term "as defined in formula (I), unless specifically defined otherwise" because the claim does not include either "formula (I)" or a definition of the variables included therein.

Claim **8** is incomplete because the term "modifying" at line 11 implies a chemical process step but fails to completely describe the process step implied. See also claim **9** at line 8 wherein the term "cyclizing" has the same problem. See also claim **11** ("condensing" and "cyclizing").

In claim **14** the term "claim1" appears to include a typo (space missing).

Claim **19** is incomplete because the term "pharmaceutical" is generic including both compounds and their compositions but fails to define what particularly is being claimed which differs from the

definition of compounds found in claim **1** (lack of proper antecedent basis). If applicant intended a pharmaceutical composition, then this claim is superfluous in view of claim **18**. In addition, said claim is improperly dependent for failure to further limit the subject matter of the claim from which it depends.

Claim **20** is indefinite for failure to specify the treatment of any particular disease condition.

Claim **20** recites the limitation "pharmaceutical" in apparent reference to a compound and/or a pharmaceutical composition. There is insufficient antecedent basis for this limitation in the parent claim.

Claim **21** provides for the use of "a compound as defined in claim **1**" in a process to create a pharmaceutical composition, but, since the claim does not set forth any step(s) involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced. The term at lines 4-5 of this claim ("analogously to common methods") does not overcome this grounds of rejection.

Claims **19 and 20** are rejected under 35 U.S.C. §112, fourth paragraph, as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Claim **19** as a compound or composition claim is improperly dependent for failure to further limit the subject matter of the claim from which it depends.

Claim **20** is improperly dependent because claim **1** fails to specify the treatment of any particular disease condition.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

"A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent."

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States."

Claims **7 and 18-20** are rejected under 35 U.S.C. §102(**b**) as being anticipated by **Duffy et al.** (PTO-892 ref. **R**).

Applicant is referred to the instant reference at page 2458, column 1, Scheme 2, structure "5a."

Claims **7 and 18-20** are rejected under 35 U.S.C. §102(**b**) as being anticipated by **Gewald et al.** (PTO-892 ref. **U**).

Applicant is referred to the instant reference at page 1537, the compound numbered "12b."

Claims **7 and 18-20** are rejected under 35 U.S.C. §102(**b**) as being anticipated by **Milne et al.** (PTO-1449 ref. **AC**).

Applicant is referred to page 2678 of the instant reference, column 1, the compound labeled "3."

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly

owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §§102(f) or (g) prior art under 35 U.S.C. §103(a).

Papers related to this application may be submitted to Group 1600 via facsimile transmission(FAX). The transmission of such papers must conform with the notice published in the Official Gazette (1096 OG 30, November 15, 1989). The telephone numbers for the FAX machines operated by Group 1600 are **(703) 308-4556** and **703-305-3592**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner L. E. Crane whose telephone number is 703-**308-4639**. The examiner can normally be reached between 9:30 AM and 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson, can be reached at (703)-308-4624.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is 703-**308-1235**.

Art Unit 1623

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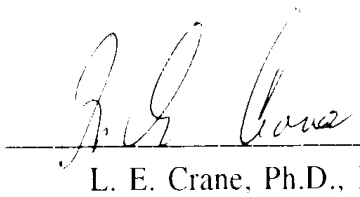

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